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Ohio State Engineer

Title: Back Matter

Issue Date: Nov-1925

Publisher: Ohio State University, College of Engineering

Citation: Ohio State Engineer, vol. 9, no. 1 (November, 1925), 29-36.

URI: <http://hdl.handle.net/1811/33740>

Appears in Collections: [Ohio State Engineer: Volume 9, no. 1 \(November, 1925\)](#)

Look for and the Orange band on every powder keg

THE du Pont "oval" trade mark and the orange band identify every keg containing blasting powder made by the du Pont Company.

In the selection of raw materials, manufacturing procedure and supervision of production, every action has this purpose—to produce blasting powder of the highest quality.

The extensive use of du Pont Blasting Powder and the highly satisfactory results obtained are proofs of its superiority. There is a granulation adapted to every blasting operation—but only the highest grade of powder comes out of the keg marked with the du Pont "oval" and the orange band.

The engineering student will find in our Blasters' Handbook valuable information relating to selection and application of various types of du Pont explosives required in mining and construction operations. The Blasters' Handbook is a most useful reference and should be among the text-books in the student engineer's library. A postal request and mention of this advertisement secure a copy of the Blasters' Handbook without cost. Send in your request NOW!

E. I. DU PONT DE NEMOURS & CO., Inc.
Explosives Department
WILMINGTON, DELAWARE



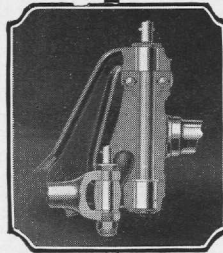
Du Pont chemical engineers insure uniformity of quality by chemical control through every step of manufacture from raw material to finished product.



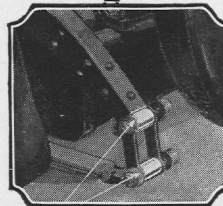
POWDER MAKERS SINCE 1802

Good Automobiles Are Known by Their Bushings

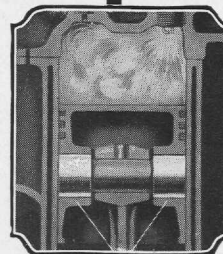
THE motor car is a conspicuous example of how a small and inexpensive part can vitally affect a costly and complicated mechanism. It is not economy to bush a car with inferior bronze alloys, brass tubing, iron or steel bushings just because it can be done for a few cents less per car.



Wobbly, difficult steering and uncertain control of the vehicle is the price paid by the motorist for poor quality bushings put into steering knuckle and tie rod by the manufacturer.



The spring eye and shackle bolt bushings are subjected to the most gruelling punishment. Anything less than a fine phosphor bronze bushing of sufficient size soon wears out.



The piston pin bushings must withstand incessant and terrific shocks in the hottest part of the engine—no place for taking chances on quality.

THE BUNTING BRASS & BRONZE COMPANY, TOLEDO, OHIO

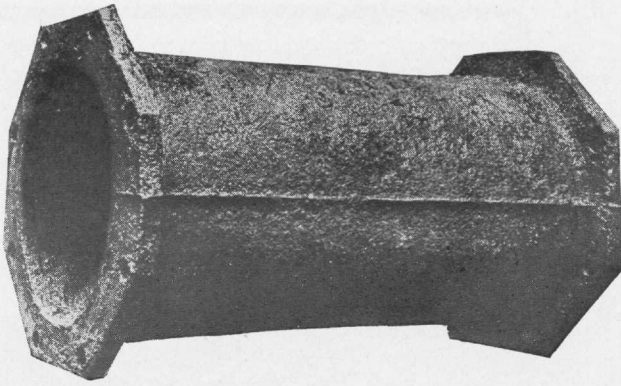
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Still in Service After 250 Years

A HUNDRED years before Napoleon was born, before his wars scourged Europe, before the French Revolution raged, this Cast Iron Pipe was laid, in the reign of Louis XIV, to supply water to the fountains of Versailles.

To the patient researches of M. Blanc, Chief Inspector of the Water Service of Versailles and Marly, into dust-covered volumes in the garrets of the Palace of Versailles, we owe the proof of its antiquity.

A report from the Director of the Water Service, M. Blanc's chief, says: "From their actual state of preservation, which is excellent, excepting the assembly iron bolts, these conduits seem to be able to furnish service for a very considerable time longer."

The high resistance of this Cast Iron Pipe to corrosion may be judged from the clearness of the fine "parting line" produced by the old horizontal method of casting.

THE CAST IRON PIPE PUBLICITY BUREAU
Peoples Gas Building, Chicago

CAST IRON PIPE

Our new booklet, "Planning a Waterworks System," which covers the problem of water for the small town, will be sent on request



Send for booklet, "Cast Iron Pipe for Industrial Service," showing interesting installations to meet special problems

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Rolling Steel Doors
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Wilson Rolling Steel Doors installed twenty years ago are still giving excellent service. By rolling overhead and out of the way, they save valuable floor space in Warehouses, Piers, Railroad and Industrial Buildings. They also offer maximum fire resistance and discourage theft. Easily operated by hand, gearing or motor.

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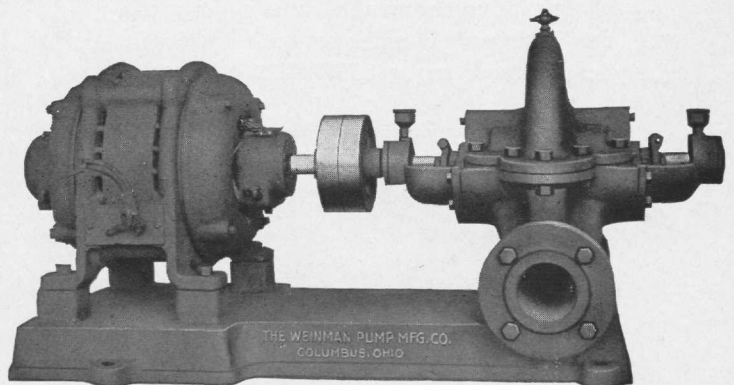


Figure 492

Write for Bulletin

THE WEINMAN PUMP MFG. CO.
COLUMBUS, OHIO, U. S. A.



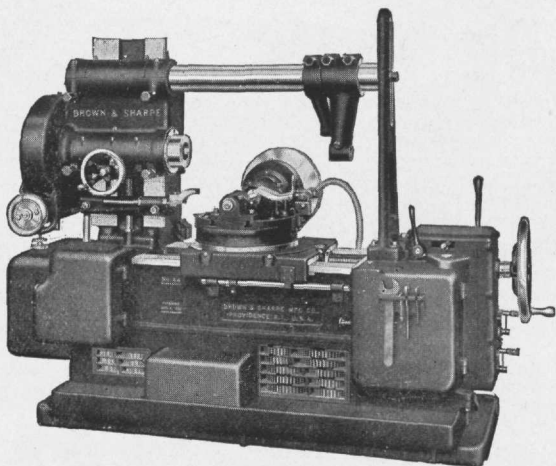
IN little more than a quarter century, the manufacture of Timken Bearings has become by far the greatest bearing industry. A daily capacity of 125,000 bearings is required of Timken plants in the United States, Great Britain and France. The total of Timken Bearings built has reached 150,000,000! And Timken Bearings are being ever more nearly universally applied to machinery of all kinds, to rolling stock, and to motor vehicles.

Indeed, in many instances, the use of anti-friction bearings first became pos-

sible only because of the special characteristics of Timken Bearings.

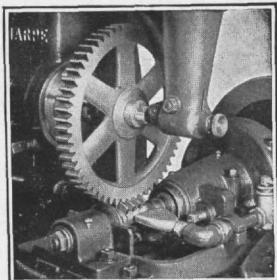
The progress of industry toward a scientifically economic basis throughout will be in your hands. And Timken Bearings are playing an ever larger part in industrial economics. The reasons are interestingly outlined in the little stiff-bound book, "The Design of the Timken Bearing." You may have a copy upon request.

THE TIMKEN ROLLER BEARING CO.
CANTON, OHIO



The Differential Eliminates Unnecessary Calculation

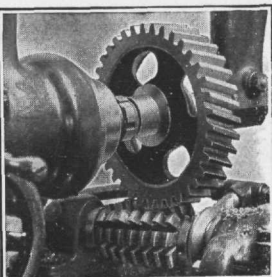
A WINNING feature of the Brown & Sharpe No. 44 Spur and Spiral Gear Hobbing Machine is the differential. With the introduction of this device



Hobbing a Spur Gear features of the No. 44 Machine.

The Brown & Sharpe No. 34 Spur and No. 44 Spur and Spiral Gear Hobbing Machines are representative of the highest development in machines made for the rapid production of accurate gears.

If you are further interested in the design, operation or production possibilities of these machines, send for "Brown & Sharpe Gear Hobbing Machines," a well illustrated booklet covering both.



Hobbing a Spiral Gear

BROWN & SHARPE MFG. CO.
PROVIDENCE, R. I., U. S. A.

GOOD LIGHTING OF INDUSTRIAL PLANTS SECURES SAFETY AND EFFICIENCY.

The Code of Lighting for factories, mills and other work places of the State of New Jersey makes excellent recommendations of daylight for the proper lighting of industrial buildings.

Adequate daylight facilities through large window areas, together with light, cheerful surroundings, are highly desirable and necessary features in every work place, and they should be supplied through the necessary channels, not only from the humane standpoint, but also from the viewpoint of maximum plant efficiency.

Importance of Daylight.

The unusual attention to gas and electric lighting in factories, mills and other work places during the past few years; the perfection of various lamps and auxiliaries, by means of which an improved quality and quantity of lighting effects are obtained; and the care which has been devoted to increasing the efficiency in various industrial apparatus—all go to emphasize the many advantages and economies that result from vital and adequate window space, as a means for daylight in the proper quantities, and in the right direction during those portions of the day when it is available.

Three Considerations.

Three important considerations of any lighting method are sufficiency, continuity and diffusion, with respect to the daylight illumination of interiors. Sufficiency demands adequate window area; continuity requires (a) large enough window area for use on reasonably dark days, (b) means for reducing the illumination when excessive, due to direct sunshine, and supplementing lighting equipment for use on particularly dark days, and especially towards the close of winter days, (c) diffusion demands interior decorations that are as light in color as practicable for ceilings and upper portions of walls, and of a dull or matt finish, in order that the light which enters the windows or that which is produced by lamps may not be absorbed and lost on the first object that it strikes; but that it may be returned by reflection and thus be used over and over again.

Diffusion also requires that the various sources of light, whether windows, skylights or lamps, be well distributed about the space to be lighted. Light colored surroundings as here suggested result in marked economy, but their main object is perhaps not so much economy as to obtain results that will be satisfactory to the human eye.

Requirements for natural lighting:

1. The light should be adequate for each employee.
2. The windows should be so spaced and located that daylight is fairly uniform over the working area.
3. The intensities of daylight should be such that artificial light will be required only during those portions of the day when it would naturally be considered necessary.
4. The windows should provide a quality of daylight which will avoid a glare, due to the sun's rays, and light from the sky shining directly into the eye, or where this does not prove to be the case at all parts of the day, window shades or other means should be available to make this end possible.

As will be noticed in the above recommendations, large windows and proper diffusion of daylight are urged, in order to meet the demands of daylight lighting.

Shades may be eliminated and most efficient lighting obtained by the use of Factrolite Glass.

If interested in the distribution of light through Factrolite, we will send you a copy of Laboratory Report—"Factrolited."

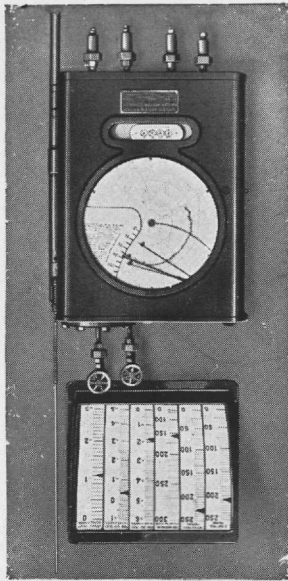
MISSISSIPPI WIRE GLASS CO.,

220 Fifth Avenue,

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BOILER PANEL consisting of Bailey Multi-Pointer Gage, Type P6F, and Bailey Boiler Meter, Type D26, Class 59.

BAILEY METERS

BAILEY BOILER METERS are of real assistance in obtaining maximum efficiency and capacity from boiler operation because they record the rate of Steam Flow from the boiler, the rate of Air Flow through the furnace and the Flue Gas Temperature on a single uniformly graded chart. The relation between the Steam Flow and Air Flow shows instantly whether an excess or a deficiency of air is being supplied. Stoker speed as well as the integrator for Steam Flow may be added.

BAILEY MULTI-POINTER GAGES are made with any number of pointers to fit each installation. Indicate Pressure, Temperature, Rate of Flow, Draft, Speed, etc.

BAILEY METERS FOR COAL AND GRANULAR MATERIALS measure coal, crushed ore and other granular materials in large quantities.

BAILEY FLUID METERS record and integrate the flow of steam or water at any pressure or temperature. The meters may be supplied with pressure recorders, temperature recorders or both.

BAILEY GAS METERS record and integrate the flow or low or high pressure gas or air at any temperature. Special meters built for measurement of chemically active gases.

BAILEY GRAVITY RECORDERS FOR LIQUIDS record the true specific gravity of a flowing sample on a 12-inch circular chart.

OTHER TYPES of Meters as well as recording and indicating Gages are made for different purposes, so that nearly any problem in connection with the metering of fluids can be handled.

Bulletins Sent on Request

Bailey Meter Company

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Engineering and Contracting, Steam Heating and Ventilating, Hot Water Heating, Plumbing, Water Softeners, Oil Burning Equipment, Sheet Metal Construction

A Complete and Perfect Service

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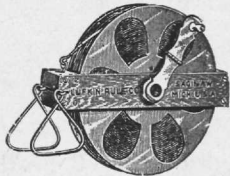
661 N. High St., Columbus, Ohio
Citizen 7749; Main 2332

W. L. GEIGLE, President
T. H. BRANNAN, Secretary

The Franklin Asphalt Paving Company

310 Comstock Bldg.

208 South High Street
Columbus : : Ohio



THE ENGINEER'S PATTERN

Popular with the engineers. A 1/4" wide extra heavy steel tape in substantial metal-lined leather case. Also furnished in open disc reel and open metal frame.

TWO STURDY AND RELIABLE

LUFKIN TAPES

FOR ENGINEERS
SURVEYORS
ROAD BUILDERS

Our line includes, also, a tape for every purpose, each one the best designed for its work.

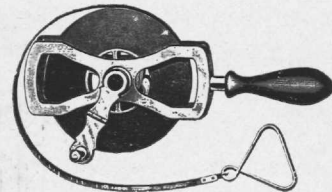
SEND FOR CATALOG

THE LUFKIN RULE CO.

SAGINAW, MICH.

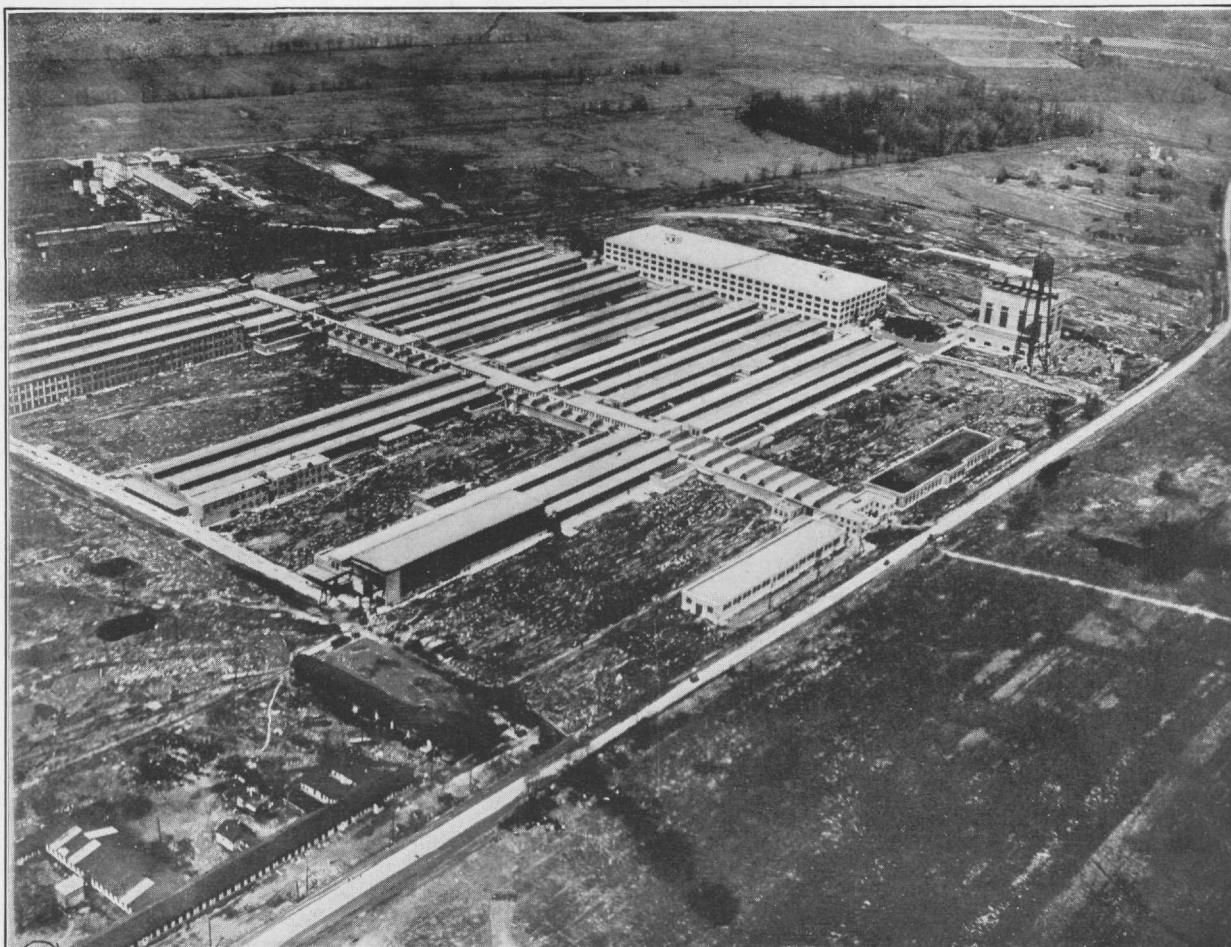
New York

Windsor, Can.



THE "CHALLENGE"

Suitable for any measuring. A steel line in high-grade metal-lined leather case. Made with 3/8" and 1/2" wide line. Many highway departments prefer the 1/2" and we recommend it for heavy service.



Airplane View of the Plant of the Dunlop Tire and Rubber Corporation, Buffalo, N. Y.

The Foundation Company, General Contractor

THAT "TIME IS MONEY" IS OFTEN TRUE IN BUILDING PROJECTS. THE SPEED REALIZED IN THE CONSTRUCTION OF THE GREAT DUNLOP PLANT STANDS OUT IN THE FIELD OF ENGINEERING ACHIEVEMENT. THE CONTRACT WAS SIGNED IN JANUARY; THE DESIGNS COMPLETED AND GROUND BROKEN IN MARCH; AND TIRES PRODUCED IN AUGUST; ALL IN THE SAME YEAR.

ON LAND OR WATER, AT HOME OR ABROAD

THE FOUNDATION COMPANY, AN ORGANIZATION OF DESIGNING AND CONSTRUCTING ENGINEERS, SPECIALIZES IN THE BUILDING OF DIFFICULT STRUCTURES. THE WORK OF THE FOUNDATION COMPANY, THROUGHOUT THE WORLD, INCLUDES ALL PHASES OF PRIVATE OR PUBLIC UNDERTAKINGS IN THE CONSTRUCTION FIELD.

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*Office Buildings • Industrial Plants • Warehouses • Railroads and Terminals • Foundations
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BUILDERS OF SUPERSTRUCTURES AS WELL AS SUBSTRUCTURES



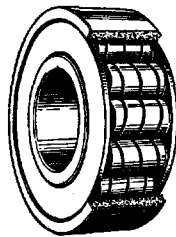
Columbus was a man of vision

BUT not even he could have foreseen the great industrial development of this country which would come about through improved methods of manufacture and transportation, and the important part that would be played by Hyatt roller bearings.

Modern industry requires and far sighted engineers demand that rotating parts be mounted on bearings that will roll instead of rub.

Raw silk, wool and cotton are transformed into the fruit of the loom; deeply hidden coal and metal ores are brought to

the light; ribs of steel are fabricated for the backbone of modern construction. In fact every phase of industry is speeded up and assured uninterrupted output by the use of Hyatt roller bearings which, with their rugged durability and unfailing dependability are serving the needs of the nation faithfully and well.



When designing or purchasing mechanical equipment, remember that the combined experience of the Hyatt Roller Bearing Company's engineers and specialists is always at your disposal to help you solve your bearing problems.

HYATT

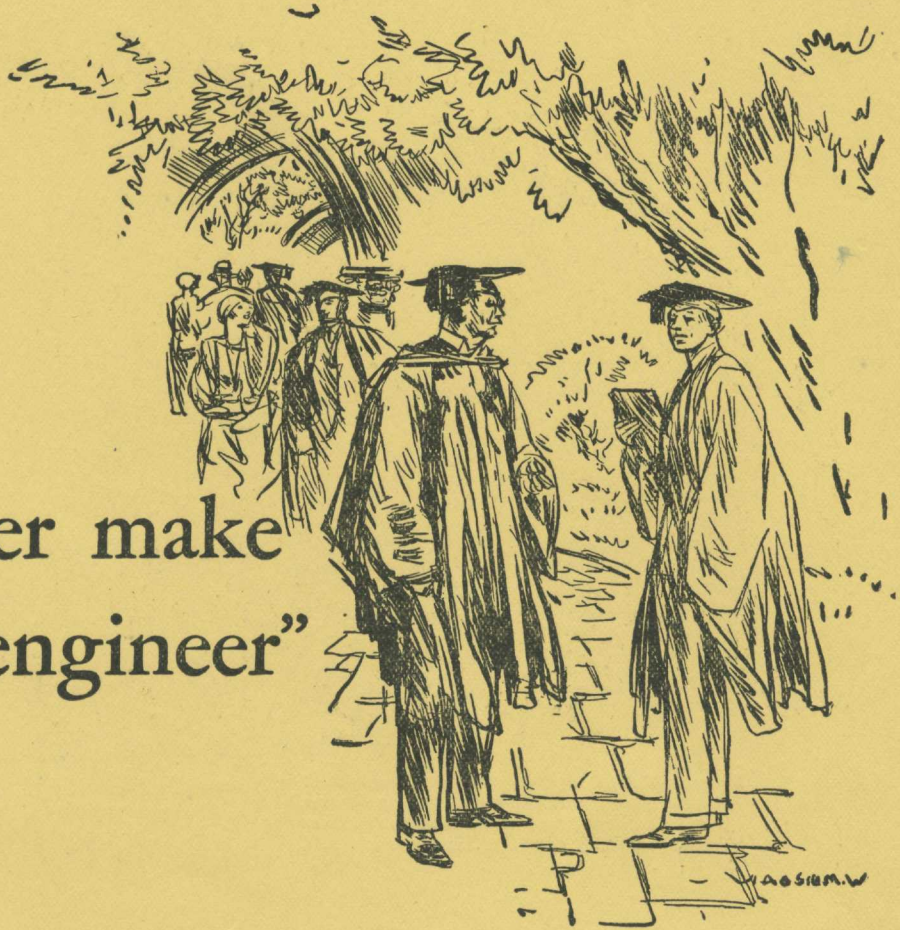
Roller Bearings

An actual Hyatt bearing, nickel plated for use as a paper weight or pocket piece, is yours for the asking. This bearing, the smallest we manufacture, clearly demonstrates the anti-friction principle which has made Hyatt bearings leaders in the commercial world.

HYATT ROLLER BEARING COMPANY, NEWARK, N. J.

APR 16 1974

APR 16 1974



“You’ll never make an electrical engineer”



Carl Taylor

SO a blond young man named Taylor, just graduating in electrical engineering at the University of North Carolina, was advised by a conscientious professor. The professor’s conviction was based on quiz papers and was amply justified. But the young man was not discouraged; he had other hopes, he said. Today—ten years later—he occupies a peculiarly important position with the Westinghouse Company.

Before Carl Taylor had completed his apprenticeship with Westinghouse he began to sell apparatus to utility-customers. He had previously sold clothing in college. He had selected an electrical engineering course because he believed the industry promising for men of selling interests.

His first actual order—the electrification of a scrap yard—was awarded to him at a higher price than that asked by any other bidder because he had “lived with” the job and given all the service this implies.

Some months later the Company was surprised at a request from him for an indefinite leave of absence. He wanted to take a job with a manufacturer of steel mill machinery, in order better to understand the problems of such users of electrical equipment. His leave lasted two years. He returned from the superintendency of a well-known plant—returned at a lower salary than the superintendency had paid him. But within three years he was

The question is asked: Where do young men get when they enter a large industrial organization? Have they opportunity to exercise creative talents? Or are they forced into narrow grooves?

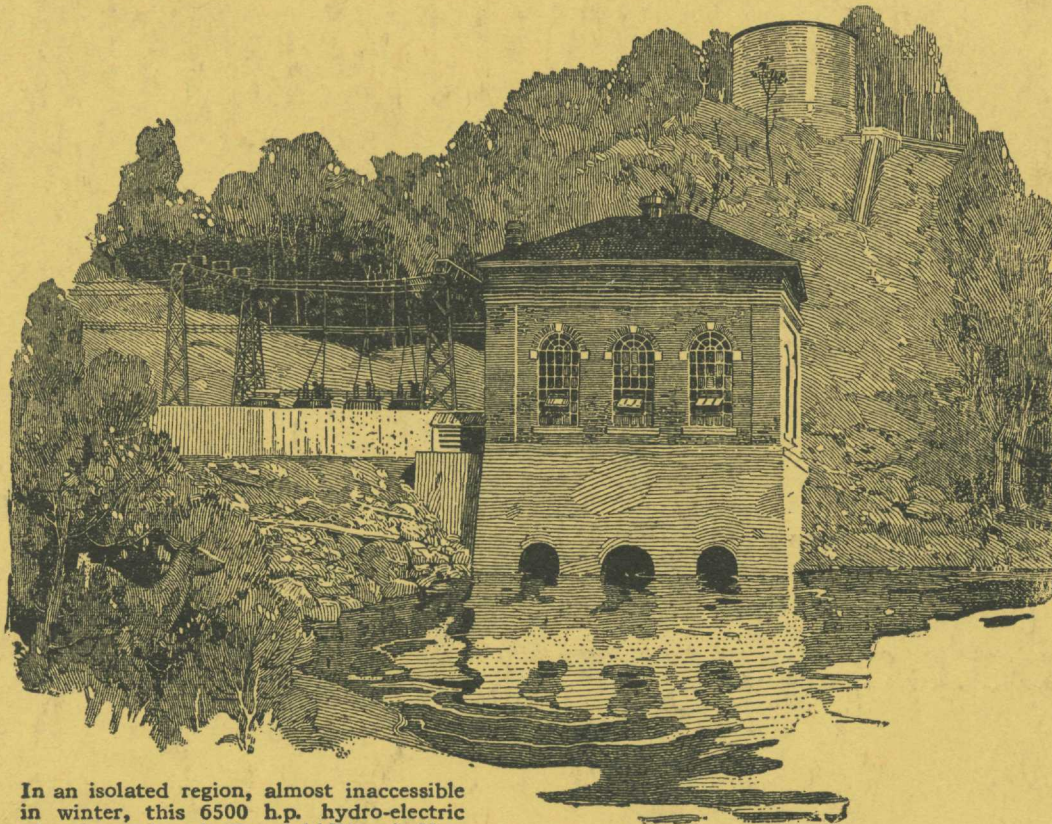
This series of advertisements throws light on these questions. Each advertisement takes up the record of a college man who came to Westinghouse within the last ten years, immediately after graduation.

manager of the industrial division of the Pittsburgh Sales Office—the largest division of the Westinghouse Company in the entire country. Today he has a sales organization of sixty-five men.

To get the customer’s point of view—to go the limit to anticipate his wants and keep him satisfied—this is the Westinghouse sales policy. It is the policy of all enlightened industrial organizations. Men who can exemplify it in their personal careers need have no question about their futures.

Westinghouse





In an isolated region, almost inaccessible in winter, this 6500 h.p. hydro-electric plant located on the Deerfield River in New England, starts, protects, and stops itself.

A Self-Starting Power Plant

Dawn—the slumbering city awakens and calls for electric current. Many miles away the call is answered. A penstock opens automatically, releasing impounded waters; a water turbine goes to work, driving a generator; and electric current is soon flowing through wires over the many miles to the city. This plant starts and runs itself.



The General Electric Company has developed generating and transmitting equipment step by step with the demand for electric power. Already electricity at 220,000 volts is transmitted over a distance of 270 miles. And G-E engineers, ever looking forward, are now experimenting with voltages exceeding a million.

A new series of G-E advertisements showing what electricity is doing in many fields will be sent on request. Ask for booklet GEK-1.

Power plants with automatic control are now installed on isolated mountain streams. Starting and stopping, generating to a set capacity, shutting down for hot bearings and windings, gauging available water supply, they run themselves with uncanny precision.

Thus another milestone has been reached in the generation of electric power. And with present-day achievements in power transmission, electricity generated anywhere may be applied everywhere.

The non-technical graduate need not know *where* electricity comes from—nor even *how* it works. But he should know *what* electricity can do for him no matter what vocation he selects.

2-10DH

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK